

In the Claims

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-40. (Cancelled)

Claim 41. (New) A wire feed device for transporting a welding wire (13) from a wire storage to a point of consumption, including at least one element (28) for guiding the welding wire (13), wherein at least one guiding element (28) including a guide path (32) is provided, along which several transport elements (33) are displaceably mounted, wherein furthermore at least one transport element (33) is connected with a drive means (37) and at least one further transport element (33) is connected with the welding wire (13) in a force-locking and/or form-locking manner, wherein at least one guiding element (28) is displaceably arranged for adaptation to the diameter of the welding wire (13).

Claim 42. (New) A wire feed device according to claim 41, wherein at least one guiding element (28) is displaceably arranged in a base body (29).

Claim 43. (New) A wire feed device according to claim 41, wherein several guiding elements (28) are provided.

Claim 44. (New) A wire feed device according to claim 43, wherein three guiding elements (28), which are preferably offset by an angle of 120° , are arranged about the welding wire (13).

Claim 45. (New) A wire feed device according to claim 42, wherein the base body (29) together with said at least one guiding element (28) is, preferably centrally, arranged in a drive sleeve (43), with the drive means (37) being formed by this drive sleeve (43).

Claim 46. (New) A wire feed device according to claim 45, wherein the drive sleeve (43) is formed with an internal thread adapted to the contour of the transport element (33) and engaged by at least on transport element (33).

Claim 47. (New) A wire feed device according to claim 46, wherein the internal thread of the drive sleeve (43), the base body (29) and the guiding element (28) are preferably conically designed.

Claim 48. (New) A wire feed device according to claim 46, wherein the base body (29) comprises a preferably cylindrical projection (42), which is mounted in the interior of the drive sleeve (43), preferably via a bearing assembly (44).

Claim 49. (New) A wire feed device according to claim 48, wherein the base body (29), on its side located opposite the projection (42), comprises a preferably rectangularly designed positioning flange (45).

Claim 50. (New) A wire feed device according to claim 49, the positioning flange (45) is connected with a retention element (46) in a rotationally fast manner.

Claim 51. (New) A wire feed device according to claim 50, wherein the drive sleeve (43) is connected with a coupling element (47), said coupling element (47) being arranged on the opposite side of the retention element (46).

Claim 52. (New) A wire feed device according to claim 51, wherein the coupling element (47) or the drive sleeve (43) is directly connected with a drive (57), in particular electromotor.

Claim 53. (New) A wire feed device according to claim 52, wherein the drive (57) is arranged axially to the wire feed device (27).

Claim 54. (New) A wire feed device according to claim 53, wherein the drive (57) comprises a hollow shaft (58), which is connected with the coupling element (47) and through which the welding wire (13) is passable to the wire feed device (27).

Claim 55. (New) A wire feed device according to claim 52, wherein the drive (57), in particular a casing (59) of the drive (57), is connected with a further retention element (60) in a rotationally fast manner.

Claim 56. (New) A wire feed device according to claim 42, wherein a pressure element (61) is arranged in the base body (29) so as to be positioned between the positioning flange (45) and the guiding element (28) and exert a pressure force onto the guiding element (28).

Claim 57. (New) A wire feed device according to claim 42, wherein the guiding element (28) comprises a guide groove (38) and at least one guide pin (50) is arranged on the base body (29) to engage said guide groove (38) of the guiding element (28).

Claim 58. (New) A wire feed device according to claim 41, wherein the transport element (33) is designed in the form of a ball.

Claim 59. (New) A wire feed device according to claim 45, wherein the drive sleeve (43) has an outer diameter (67) of between 20mm and 30mm.

Claim 60. (New) A wire feed device according to claim 41, wherein the wire feed device (27) is arranged in a welding torch (10) and/or welding apparatus (1).

Claim 61. (New) A method for feeding a welding wire (13) from a wire storage to a point of consumption, wherein the welding wire (13) is guided through at least one element (28), and wherein several transport elements (33) are guided in at least one guiding element (28) to circulate along a guide path (32), with at least one transport element (33) being in operative connection with the welding wire (13) on a side of the guiding element (28) facing the welding wire (13), and on at least one further side of the guiding element (28), at least one further transport element (33) is displaced by a drive means (37), thus causing the further transport elements (33) arranged in the guide path (32) to be moved on by said one transport element (33) displaced by the drive means (37), wherein at least one guiding

element (28) is displaced for adaptation to the diameter of the welding wire (13).

Claim 62. (New) A feeding method according to claim 61, wherein the guiding element (28) is displaced in a base body (29), preferably in the longitudinal and/or vertical direction.

Claim 63. (New) A feeding method according to claim 62, wherein several guiding elements (28) are arranged in the base body (29).

Claim 64. (New) A feeding method according to claim 62, wherein preferably three guiding elements (28), which are offset by 120°, are arranged in the base body (29).

Claim 65. (New) A feeding method according to claim 62, wherein the base body (29), together with the guiding element (28) arranged therein, is preferably centrally arranged in a drive sleeve (43) forming the drive means (37).

Claim 66. (New) A feeding method according to claim 65, wherein at least one transport element (33) engages a thread (36) of the drive means (37), with the contour of the thread (36) being adapted to the contour of the transport element (33).

Claim 67. (New) A feeding method according to claim 66, wherein the thread (36) of the drive sleeve (43), the base body (29) and the guiding element (28) are preferably conically designed.

Claim 68. (New) A feeding method according to claim 66, wherein the base body (29) comprises a preferably cylindrical projection (42), via which the base body (29) is mounted in the interior of the drive sleeve (43), preferably via a bearing assembly (44).

Claim 69. (New) A feeding method according to claim 68, wherein the base body (29), on its side located opposite the projection (42), comprises a preferably rectangularly designed positioning flange (45).

Claim 70. (New) A feeding method according to claim 69, wherein the positioning flange (45) is connected with a retention element (46) in a rotationally fast manner.

Claim 71. (New) A feeding method according to claim 70, wherein a coupling element (47) is connected with the drive sleeve (43) on the opposite side of the retention element (46).

Claim 72. A feeding method according to claim 71, wherein the coupling element (47) or the drive sleeve (43) is directly connected with a drive (57), in particular electromotor.

Claim 73. (New) A feeding method according to claim 72, wherein the drive (57) is arranged axially to the wire feed device.

Claim 74. (New) A feeding method according to claim 73, wherein the drive (57) is connected with the coupling element (47) via a hollow shaft (58) arranged in the drive (57), said welding wire (13) being fed through said hollow shaft (58).

Claim 75. (New) A feeding method according to claim 72, wherein the drive (57), in particular a casing (59) of the drive (57), is connected with a further retention element (60) in a rotationally fast manner.

Claim 76. (New) A feeding method according to claim 62, wherein a pressure force is exerted on the guiding element (28) by a pressure element (61) arranged in the base body (29) between the positioning flange (45) and the guiding element (28).

Claim 77. (New) A feeding method according to claim 62, wherein at least one guide pin (50) arranged on the base body

(29) engages a guide groove (38) of the guiding element (28) and the guiding element (28) is displaced via said assembly.

Claim 78. (New) A feeding method according to claim 61, wherein the transport element (33) is designed in the form of a ball.

Claim 79. (New) A feeding method according to claim 65, wherein the drive sleeve (43) has an outer diameter (67) preferably of between 20mm and 30mm.

Claim 80. (New) A feeding method according to claim 61, wherein the wire feed device (27) is preferably arranged in a welding torch (10) and/or welding apparatus (1).